

UTAH DEPARTMENT OF NATURAL RESOURCES - DIVISION OF OIL, GAS AND MINING
1594 West North Temple - Suite 1210, Salt Lake City UT 84116 (Delivery service)
Box 145801, Salt Lake City UT 84114-5801 (US Postal service)
Telephone: (801) 538-5342

LARGE MINING OPERATIONS PROGRESS REPORT
January 1, 2015 to December 31, 2015

The information required in this form is based on provisions of the Mined Land Reclamation Act, Title 40-8, and the R647 rules under the Utah Minerals Regulatory Program. It is due January 31 of each year. Attach additional pages as needed.

1. Mine Permit Number: M/023 /0003
2. Mine Name: Topaz Mining Property
3. Name of Operator/Permittee: Materion Natural Resources
Note: If Operator's address, company representative and/or phone number have changed, submit replacement page(s) for the Notice of Intention together with form MR-REV available on the Division's web page at https://fs.ogm.utah.gov/pub/MINES/Minerals_Related/FORMS/MR-REV.pdf.
4. Report the gross amount of ore or product mined and waste moved.

Gross ore or product mined 47,700 (amount) Wet Tons (unit)
Waste material moved 5,575,000 (amount) Cubic Yards (unit)

Disposition of ore and waste: Tuff is the host rock for the ore. Overburden consists of alluvium, rhyolite, altered rhyolite, and barren tuff.

Primary Commodities Produced Bertrandite

5. Total disturbed area from previous reporting year 250.3 Acres
New disturbance created during current reporting year 201.0 Acres
Total disturbed area at the end of this reporting year 451.3 Acres*

* The total disturbed area includes reporting year and previous year disturbances minus areas of regrading and reseeding that have received approval for bond release. The **Total** area should not be greater than the permitted/bonded acreage.

6. Areas of reclamation eligible for bond release:
Areas regraded during the year (-) 27.1 Acres**
Areas reseeded during the year (-) 0.0 Acres**

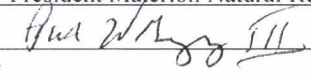
** To apply for full or partial bond/site release submit form MR-SITE available at the Divisions web page at https://fs.ogm.utah.gov/pub/MINES/Minerals_Related/FORMS/MR-SITE.pdf.

7. Briefly describe reclamation work performed during current reporting year. If there was no production shown in Line 4, describe any maintenance work conducted that required earthmoving equipment. Include an updated map depicting surface disturbance and reclamation performed during the year (per R647-4-121.2) and any updates to the operation plan (per R647-4-106).
Observe revegetation efforts on Monitor Dump top rounding, redistribute topsoil, rip, and dimple as prescribed in the mine reclamation plan. Please refer to attached for additional details.

I hereby certify the information provided in this report is true and correct to the best of my knowledge and belief.

Name (Typed or Print): Porter W. Gregory III

Title of Operator: President Materion Natural Resources

Signature of Operator: 

Date: 2-18-16

Supplement to Form MR-AR

2015 Annual Report to the Utah Division of Oil, Gas & Mining

- **Letter dated March 3, 2015- Partial Bond Release**
- **Memorandum – South Wind Phase 2 Reclamation**
- **Photos of Reclamation Work**
- **MRP Plate 10 – South Wind Phase 2 Reclamation Matrix**
- **MRP Plate 12 – Updated Disturbed Acreage Map**
- **Weather Trend Graph**



GARY R. HERBERT
Governor

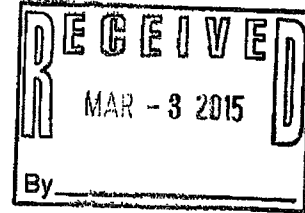
SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director



March 3, 2015

John Wagner
Materion Natural Resources Company
P. O. Box 815
Delta, Utah 84624

Subject: Partial Release of Reclaimed Area, Materion Natural Resources, Topaz Mine,
M/023/0003, Juab County, Utah

Dear Mr. Wagner:

On February 11, 2015, we received your request for partial release of acreage that has been reclaimed at the Topaz Mine. Inspection of the reclaimed areas found that the reclamation standards have been achieved. Therefore, the Division hereby releases you from further reclamation responsibility for the reclaimed areas. Your current surety amount is now sufficient for your current disturbance.

If you have any questions or concerns regarding this letter, please contact me at 801-538-5261 or Wayne Western at 801-538-5263. In response, please reference our file number M/023/0003 regarding this project.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB:whw:pb
P:\GROUPS\MINERALS\WP\M023-Juab\M0230003-Topaz-brush\final\Release-6482-02252015.docx





**Natural Resources
MEMORANDUM**

Date: 01/25/2016
TO: Wayne Western
FROM: Robert Dalton
SUBJECT: Topaz Mine – South Wind Phase 2 Reclamation

The following notes outline the work done to reclaim the South Wind Phase 2 dump top surface. Relevant information is taken from the approved Mining Reclamation Plan (December 2006 – updated 2013). Please see the Plan section references as needed during the review of this document. Plate 7A from the plan is a good visual reference.

Work completed consisted of:

1. **Topsoil sampling, mapping, and stockpiling.**
 - a. Topsoil recovery was based on field observations and analytical results. (see MRP 7.7)
 - b. The “new” topsoil was stockpiled in proximity to the dump site locations. (see attached South Wind Reclamation map). A total of 28,541 cubic yards was available for redistribution on the dump top surface area. This compares with the project demand for topsoil of 23,103 cubic yards for the South Wind Phase 2 (MRP Table 7.10-1).
2. **Dump top contouring with rock piles intended for wildlife habitat.**
 - a. The surface of the dump top was contoured with a dozer and excavator and the larger rocks were arranged in random piles in order to provide wildlife habitat (see attached photographs).
 - b. The dump area was estimated at 50.1 acres in the plan (see MRP Table 7.10-1). The as-built dump top area encompasses 47.8 acres of which 27.1 dump top acres were reclaimed. The remaining acreage of the lower level dump top will be utilized as the ore stockpile area as shown on Plate 7A.
3. **Dump top perimeter rounded.**
 - a. The rounding is a standard reclamation treatment intended to blend the dump crest to the surrounding terrain and reduce erosion (see MRP section 7.4.2 and attached schematic).
 - b. The Plan estimated 10,630 cubic yards which equates to 7,555 linear feet of rounding for the South Wind dump tops (see Appendix 7 of the MRP). The plan understates the actual linear feet by 1,655 feet due to esthetic enhancements and volume shortage. The total as-built length of rounded perimeter is 9,210 feet. Approximately 6,402 feet of the dump top perimeter was rounded. The remaining perimeter will be utilized as the ore stockpile area as shown on Plate 7A and will be rounded at a later date.
4. **Distribute available topsoil on the dump top surface.**
 - a. The recovered topsoil stockpile contained 28,541 cubic yards. This is fifty four percent less topsoil than was estimated in the plan (see Table 5.6-1 of the MRP).

- b. The demand thickness was three inches, where the actual average distribution thickness was over five inches due to the roughened surface of the dump top and outslopes. There were 24,000 yards spread over the dump top surfaces and rounded crests. Approximately 4,500 yards of topsoil was stockpiled for future use on the stockpile pad area.
- 5. **Dump top amendments .**
 - a. Topsoil analysis indicates that salinity is not a problem. Therefore, an application of gypsum is not needed.
 - b. Use of chemical fertilizers (e.g. Mono-ammonium Phosphate) may attract invasive plant species (e.g. cheat grass) and was therefore not used.
- 6. **Apply reclamation seed mix.**
 - a. The seed mix approved in the plan (see Table 7.11-1 of the MRP) was applied in early winter 2016 (see MRP 7.11) using a four wheeled vehicle and calibrated seed broadcaster. Weather conditions during the application varied, but were generally favorable.
 - b. Seed was ordered well in advance to insure availability. The as-built treated area required 286 pounds of seed mix to comply with the plan. Additional seed was added to the order to insure good coverage and germination on the treated surfaces.
 - c. Limited seed was applied to the dump outslope.
- 7. **Deep ripping of the dump top not necessary.**
 - a. The “plug dumping” and dozer spreading construction method provided a loose surface that is deeper than the eighteen inch rip depth specified in the plan (see MRP 7.8).
 - b. A “shallow rip” or scarifying of approximately six inches or more was done in the areas covered with topsoil. This mixed the topsoil and is expected to improve the overall seedbed.
- 8. **Dimple the dump top and topsoil storage areas with the sheepsfoot implement.**
 - a. The sheepsfoot is a standard treatment intended to press the seed into the soil and create depressions to collect water and provide shelter for seedlings (see 7.6.3).

The work on numbers 5-9 above was completed during the fall in compliance with the plan (see 7.11 of the MRP). The seed mix application was completed in the second half of January 2016. The seed broadcast was timed simultaneously to take advantage of the winter moisture. The plant species in the seed mix should have an adequate dormancy and freezing period for germination.

All considerations and tasks are in compliance with the plan. Therefore, the Division of Oil, Gas and Mining did not need advance notification.

Attachments:

- Map of “As-Built Features”
- “Dump Top Rounding Schematic”
- Photos of reclamation work



Rounded dump top and ripped dump ramp



Sheepsfoot on rounded dump top



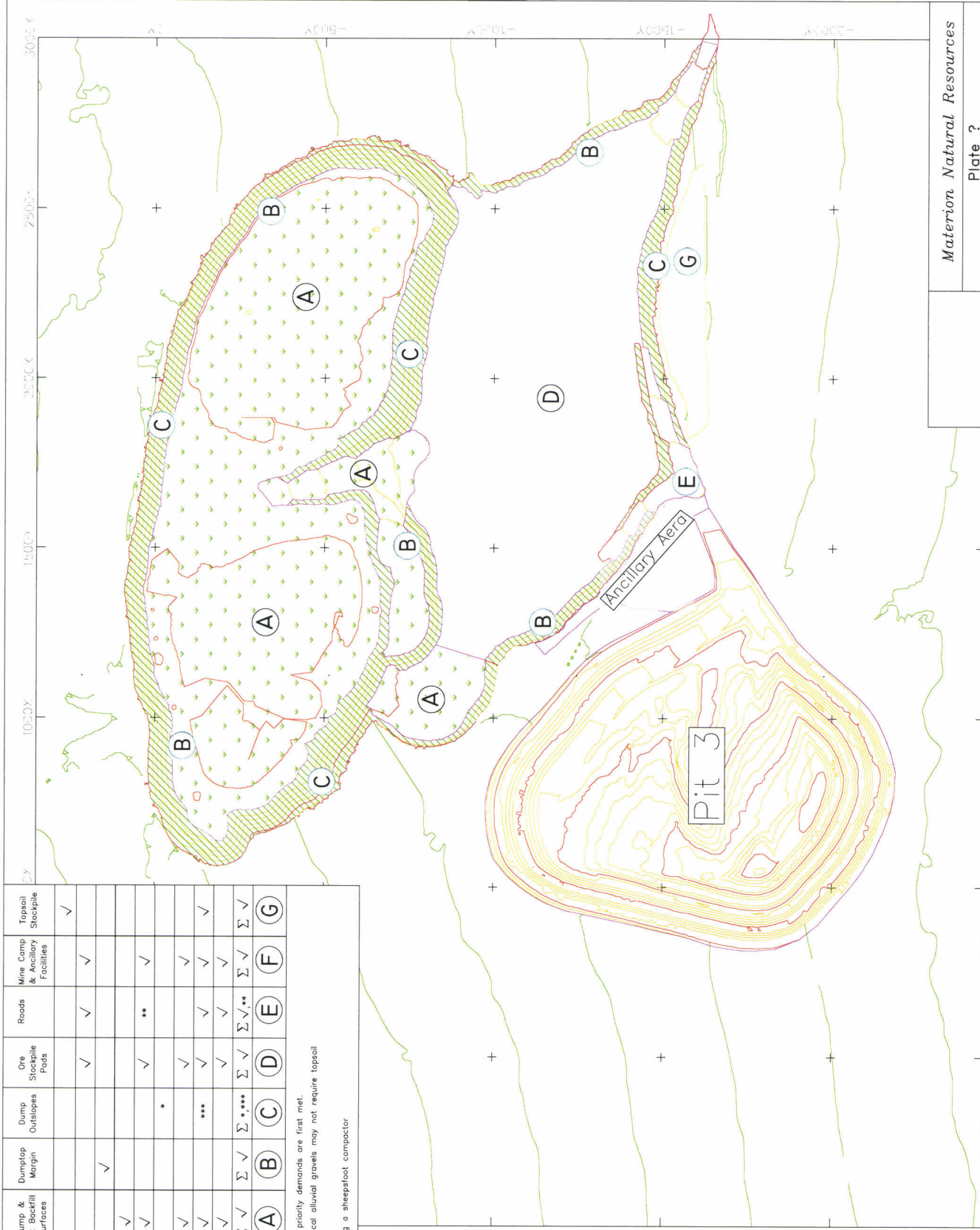
Sheepsfoot on dumptop



Ripped dump top and rock mound.

Reclamation Treatments	Dump & Pit Backfill Surfaces	Dumppop Margin	Dump Outcrops	Ore Stockpile Pads	Roads	Mine Camp & Ancillary Facilities	Topsail Stockpile
Shallow Surface Rip							✓
Deep Surface Rip				✓	✓	✓	
Rounding with Dozer		✓					
Surface Contouring	✓						
Place 3 to 6 Inches Soil/Substitute	✓		*	✓	**	✓	
Sidecast Topsoil from Dumptop							
Mulch	✓			✓		✓	
Reclamation Seed Mix	✓		***	✓	✓	✓	✓
Final Surface Treatment ****	✓			✓	✓	✓	
Treatment Components	Σ ✓	Σ ✓	Σ * ****	Σ ✓	Σ ✓ **	Σ ✓	Σ ✓
Treatment Type	(A)	(B)	(C)	(D)	(E)	(F)	(G)

* If available after other higher priority demands are first met.
 ** If necessary (roads built of local alluvial gravels may not require topsoil)
 *** If topsoil is first placed
 **** Surface will be "dimpled" using a sheepfoot compactor



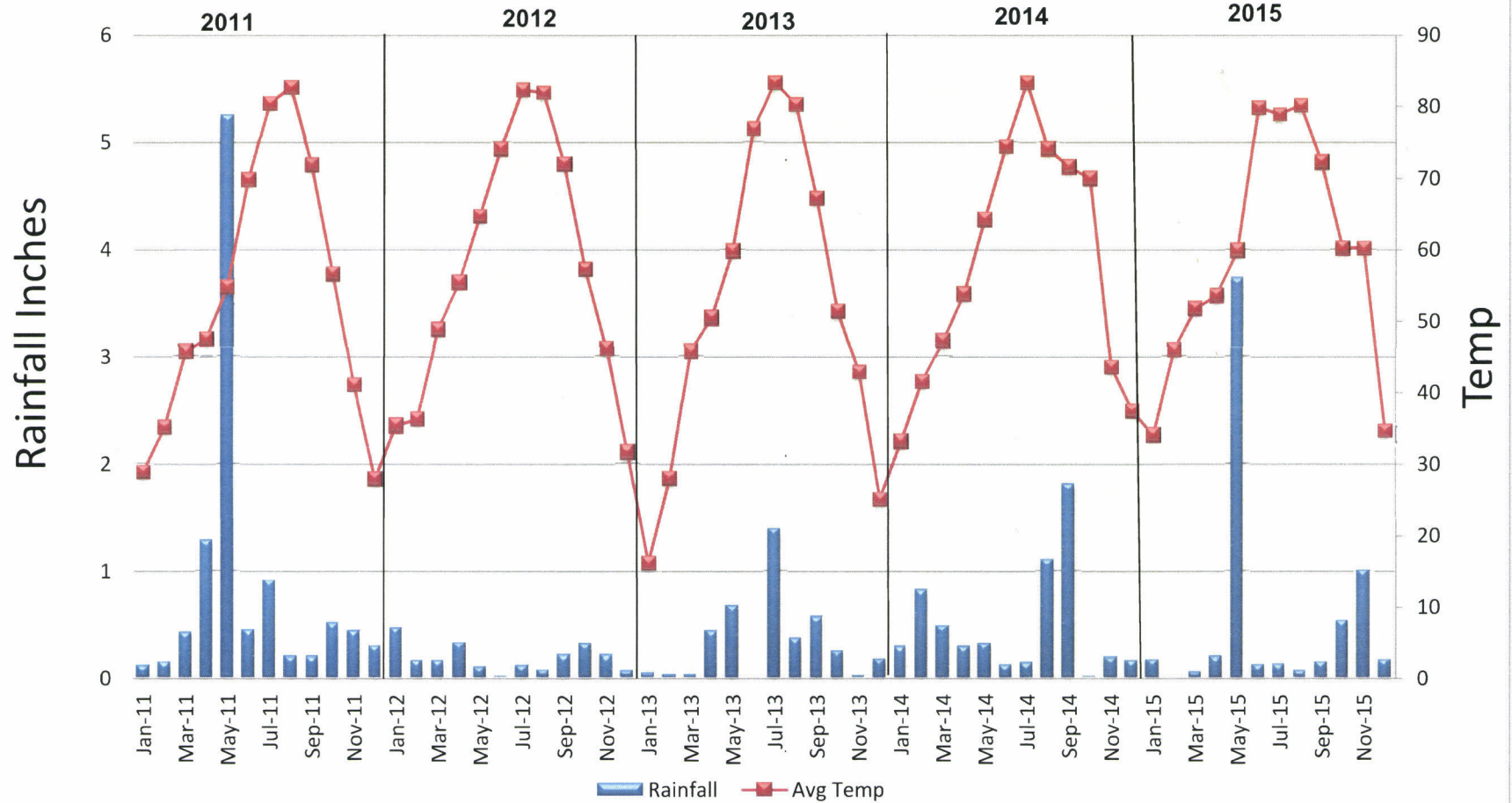
DUMP TOP ROUNDING

Material Natural Resources		Plate ?	
Topaz Mining Properties		Southwind "LMU" PIT	
RECLAMATION TREATMENTS			
SIZE	DWG NO.	DATE	REV
C	LA/Eng./MRF/Phase1/Mon/PMC/LMU1.dwg	01/21/16	
DRAWN BY PS		SHEET 2400	

Topaz Mine Weather Trend

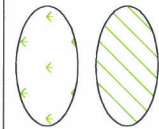
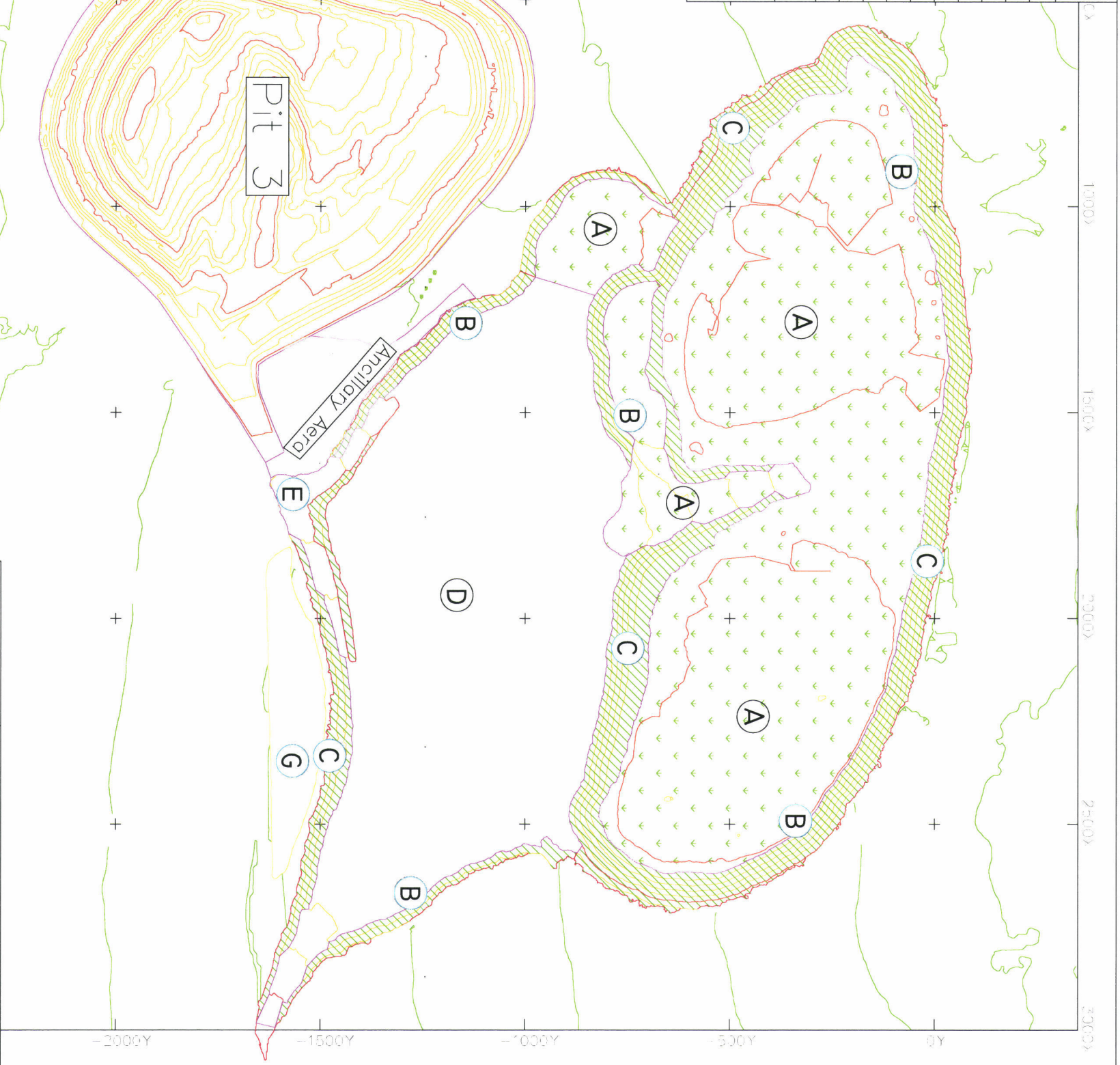
Avg Temp/Year
 2011 - 54°
 2012 - 57°
 2013 - 52°
 2014 - 58°
 2015 - 59°

Avg Rainfall/Year
 2011 - 10.20"
 2012 - 2.20"
 2013 - 3.98 "
 2014 - 5.73"
 2015 - 6.32"



Reclamation Treatments	Dump & Pit Backfill Surfaces	Dumptop Margin	Dump Outcrops	Ore Stockpile Pads	Roads	Mine Camp & Ancillary Facilities	Topsoil Stockpile
Shallow Surface Rip							✓
Deep Surface Rip				✓	✓	✓	
Rounding with Dozer		✓					
Surface Contouring	✓						
Place 3 to 6 Inches Soil/Substitute	✓			✓	**	✓	
Sidecast Topsoil from Dumptop			*				
Mulch	✓			✓		✓	
Reclamation Seed Mix	✓		***	✓	✓	✓	✓
Final Surface Treatment ****	✓			✓	✓	✓	
Treatment Components	Σ ✓	Σ ✓	Σ ,***	Σ ✓	Σ ✓,**	Σ ✓	Σ ✓
Treatment Type	(A)	(B)	(C)	(D)	(E)	(F)	(G)

* If available other higher priority demands are first met.
** If necessary (roads built of local alluvial gravels may not require topsoil)
*** If topsoil is first placed
**** Surface will be "dimpled" using a sheepfoot compactor



DUMP OUTSLOPE AREA

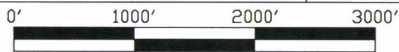
DUMP TOP ROUNDING

Materrion Natural Resources				Plate ? Topaz Mining Properties Southwind "LMU" PIT RECLAMATION TREATMENTS	
N				DRAWN BY	PS
ZONE	REV	DESCRIPTION	DATE	APPROVED	REV
01/21/16				SCALE	2400
				SHEET	

Materion Natural Resources

Plate 12
Topaz Mining Properties
DISTURBED ACRES
STATUS OF PROPERTIES
EXISTING & RELEASED

SIZE	DWG NO.	REV
C	L:\Reclamation\Phase 2\South Wind P2	10
Drawn By: RD/PS		Date: 01/07/16
		SHEET 1 of 1



T12S, R12W

T13S, R12W

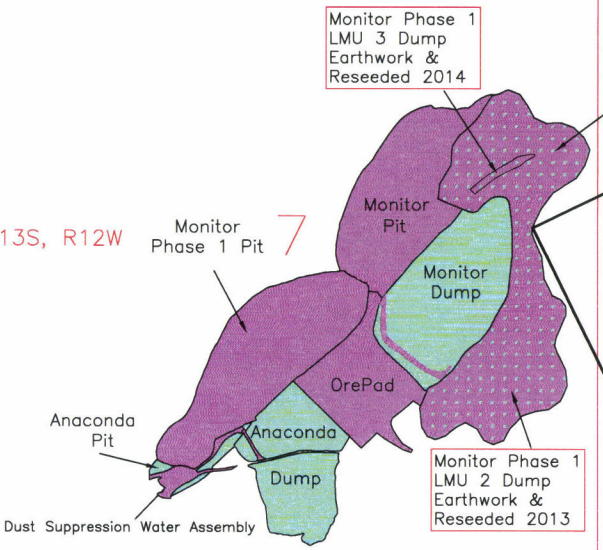
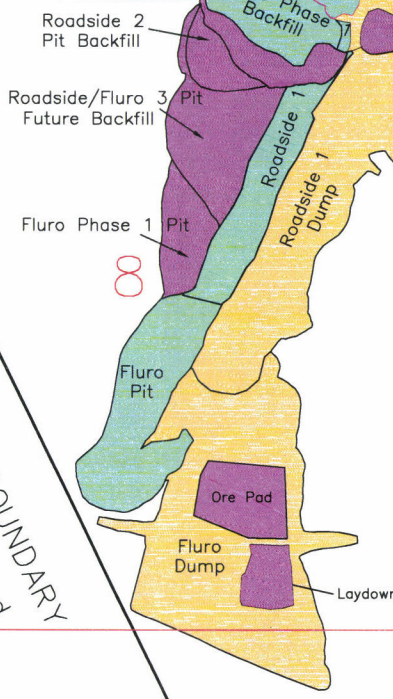
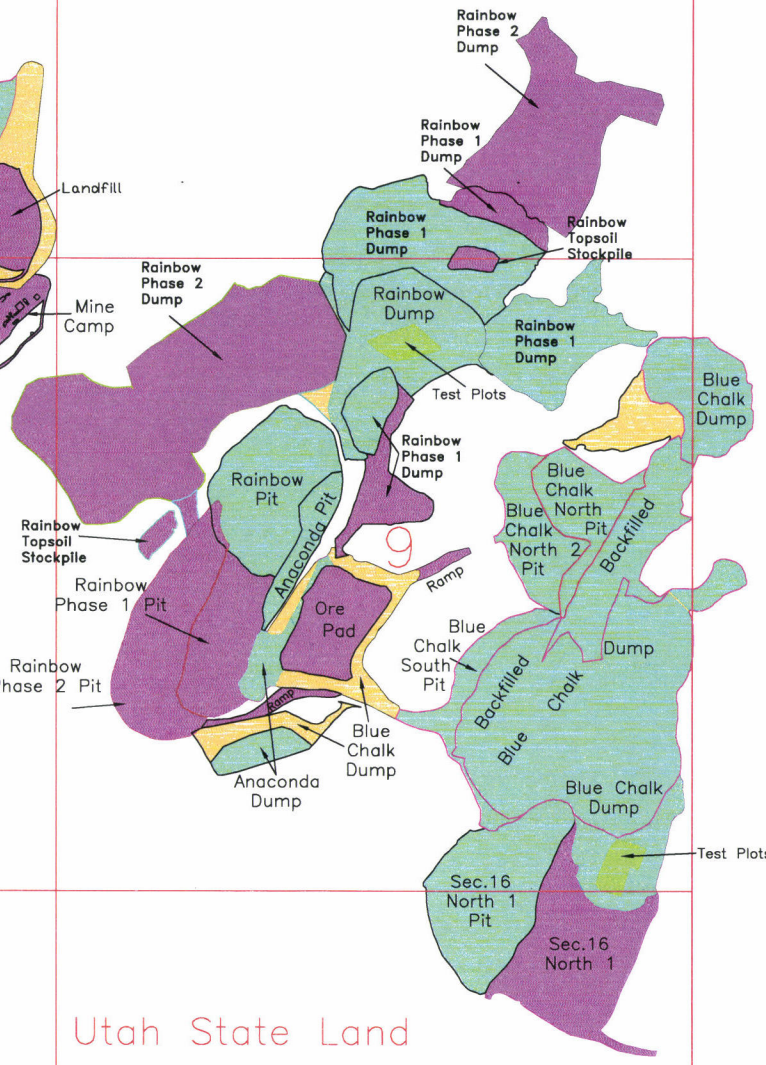
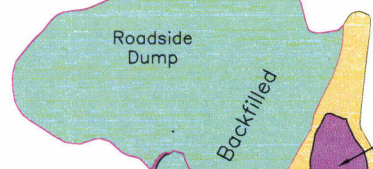
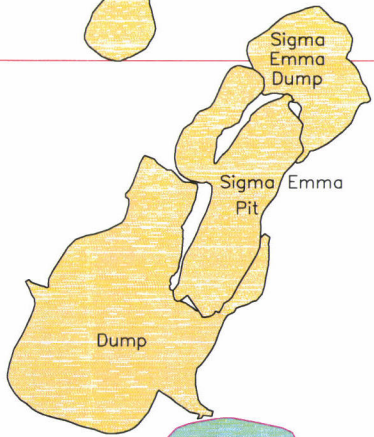
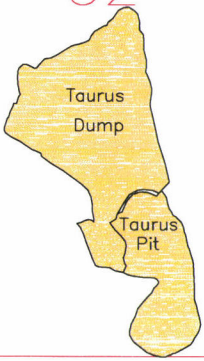
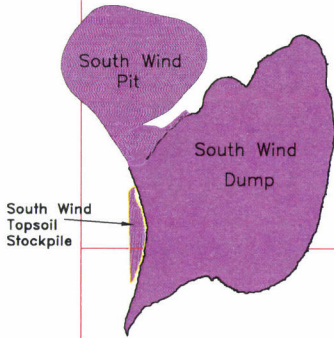
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9

8

31

32



- LEGEND**
- 1 Pit and dump disturbances varianced in the 1988 revision with no remaining reclamation obligations.
 - 2 Pit, dump, backfill and other disturbances released or varianced from 1988 to present
 - 3 Disturbances requested for variance in an MRP amendment (none current).
 - 4 Pit, dump, backfill, ore pad, mine camp and other disturbances subject to reclamation liability
 - 5 Reclamation treatment test plots
 - 6 Partial release

Explanation				
Type 1 refers to remaining acreage granted variance in 1988 revision				
Type 2 refers to acreage released or varianced post 1988				
Type 3 refers to variance requested in an amendment (none current)				
Type 4 refers to acreage disturbed and active				
Property	Type 1	Type 2	Type 3	Type 4
Roadside	49.4	111.1	0.0	12.6
Blue Chalk North	6.5	52.4	0.0	0.0
Blue Chalk South	6.3	71.9	0.0	0.0
Fluro	54.1	38.3	0.0	29.6
Sigma Emma	100.7	0.0	0.0	0.0
Taurus	49.2	0.0	0.0	0.0
Rainbow	13.5	129.9	0.0	161.7
Roadside/Fluro	0.0	0.0	0.0	16.8
Section 16 North	0.0	37.4	0.0	26.4
Section 16 South	0.0	0.0	0.0	0.0
Monitor	0.0	44.6	0.0	113.6
Camp	0.0	0.0	0.0	0.0
South Wind	0.0	0.0	0.0	83.8
Roads				
Mine Camp	0.0	0.0	0.0	6.8
Total Acres by "Type"	279.6	485.6	0.0	451.3
Total Acreage	1216.4			

ZONE	REV	DESCRIPTION	DATE	APPROVED
ZONE	1	Disturbance and release/variance status update EOY 2015	2/15/16	RD

HORN BOUNDARY
Utah State Land

Utah State Land